



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/028,548	12/19/2001	Dallas K. Pierson	10309US01	2468

7590 06/05/2003

Steven J. Shumaker
Shumaker & Sieffert, P.A.
8425 Seasons Parkway
Suite 105
St. Paul, MN 55125

EXAMINER

PHAM, HAI CHI

ART UNIT	PAPER NUMBER
----------	--------------

2861

DATE MAILED: 06/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/028,548	PIERSON, DALLAS K.
	Examiner	Art Unit
	Hai C Pham	2861

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on _____.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-34 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-34 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All
 - b) Some *
 - c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 - a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 4) Interview Summary (PTO-413) Paper No(s) _____.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____.

DETAILED ACTION***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yen et al. (U.S. 5,992,962) in view of Serra (U.S. 6,067,405) and Arce et al. (U.S. 6,493,112 B1).

Yen et al., an acknowledge prior art, discloses print masks for inkjet printers, the print masks having triangular patterns formed by open dots and solid black dots, the open dots corresponding to the nozzles being turned off while the solid black dots correspond to printed nozzles such that a multipass staggered-swath printing is performed. Although Yen et al. does not explicitly teach the open dots and solid black dots constituted set of first and second logical values, e.g. binary "1" and "0" values, and that the print mask being used in a laser printer, Yen et al. does however indicate that the print masks can be implemented as either a hardware or software driver to drive the print head, e.g., open or muffle the various nozzles. It is well known in the art that such software-driven print masks include a matrix set of logical values of "1" and "0" representing pixel grid as evidenced by Serra (Fig. 14). On the other hand, Arce et al. discloses a method and apparatus for producing halftone images using green-noise masks, wherein the mask is

constituted by sets of binary values, and can be used in any specific printers, e.g., laser printer or inkjet printer.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to implement the print masks of Yen et al. to have binary values as taught by both Serra and Arce et al. The motivation for doing so would have been to provide the print mask as a software driver for driving the print head such that the print mask can be used in a variety of printing engine types.

Yen et al. further teaches the print mask extending in a first (horizontal or row) direction, wherein the first set of first solid black dots is spatially proximal to the second set of solid black dots in the first direction, the spatial frequency of the first set of the solid black dots spatially clustered in the first triangle-like shape and the second set of the solid black dots spatially clustered in the second triangle-like shape being greater than the spatial frequency of neighboring halftone pixels (Fig.6), the mask extending in the first (horizontal or row) and second (vertical or column) directions, wherein the first and second triangle-like shapes include a base and a peak, the base being oriented in the first direction, and the base of the first triangle-like shape being spatially proximal to the peak of the second triangle-like in the second direction, the peaks being unaligned in the second direction (Fig. 6), the set of open dots being spatially clustered in a third triangle-like shape, and wherein the first and second triangle-like shapes having a first orientation and the third triangle-like shape having an orientation that is inverted relative to the first orientation, the boundary between the set of the open dots and the first and second sets of solid black dots being an irregular zigzag, and the mask being stored in a computer-readable data file.

Art Unit: 2861

Yen et al. also teaches the inkjet printer printing a varied breath of swath as a function of image data and the mask during printing (the printed dots as a function of the mask form triangular shaped patterns bordering with triangular shaped patterns of the non-printed dots such that the printed swath has varying breath).

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C Pham whose telephone number is (703) 308-1281. The examiner can normally be reached on T-F (8:30-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Benjamin R. Fuller can be reached on (703) 308-0079. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722, (703) 308-7724, (703) 308-7382, (703) 305-3431, (703) 305-3432 for regular communications and for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Hai Pham

HAI PHAM
PRIMARY EXAMINER

May 28, 2003